

In the Claims:

1. (Currently Amended) A method of identifying at least one chemical compound that interacts with an enzyme comprising the steps of:

- a) mixing a substrate ~~or product~~ of said enzyme with at least one said chemical compound;
- b) generating a first NMR spectrum that displays either a chemical shift in the first dimension or a chemical shift in the other dimension of said substrate ~~or product~~ in step a);
- c) exposing the mixture of said substrate ~~or product~~ and at least one said chemical compound in step a) to said enzyme for one or more incubation times;
- d) generating a second NMR spectrum that displays either a chemical shift in the first dimension or a chemical shift in the other dimension of substrate ~~or product~~ in step a) that has been exposed to said enzyme in step c) in the presence of at least one ~~of~~ chemical compounds in step a);
- e) comparing said first NMR spectrum and second NMR spectrum after one or more said incubation times in step c) to determine at least one difference between said first NMR spectrum and second NMR spectrum, the differences observed along either or both chemical shift dimensions identifying transformation of said substrate ~~or product~~ and classifying the presence of at least one said chemical compound that interact with said enzyme.

2. (Cancelled)

3. (Previously Presented) The method of claim 1 wherein at least one said chemical compound of step a) is in solution or attached to a solid substrate or matrix.

4. (Previously Presented) The method of claim 1 wherein said first NMR spectrum of step b) is selected from the group consisting of a one-dimensional, two-dimensional and three-dimensional spectrum.

5. (Previously Presented) The method of claim 4 wherein said first NMR spectrum displays a chemical shift in said first dimension selected from the group consisting of ¹H, ³H, ¹¹B, ¹³C, ¹⁵N, ¹⁹F, ²⁹S and ³¹P chemical shift, and a chemical shift in said other dimension selected from the group consisting of ¹H, ³H, ¹¹B, ¹³C, ¹⁵N, ¹⁹F, ²⁹S and ³¹P chemical shift.

6. (Previously Presented) The method of claim 1 wherein said mixture of exposing step of step c) comprises between 2 and 100 chemical compounds.

7. (Original) The method of claim 1 wherein said incubation times number between 1 and 20, 30, 40, 50 or greater.

8. (Previously Presented) The method of claim 1 wherein step d) said second spectrum displays a chemical shift in said first NMR dimension selected from the group consisting of ¹H, ³H,